CLAIM AMENDMENTS

- 1. (Original) A nano-porous metal oxide semiconductor with a band-gap of greater than 2.9 eV in-situ spectrally sensitized on its internal and external surface with metal chalcogenide nano-particles with a band-gap of less than 2.9 eV containing at least one metal chalcogenide, wherein said nano-porous metal oxide further contains a phosphoric acid or a phosphate.
- 2. (Original) Nano-porous metal oxide according to claim 1, wherein said metal oxide is selected from the group consisting of titanium oxides, tin oxides, niobium oxides, tantalum oxides and zinc oxides.
- 3. (Original) Nano-porous metal oxide according to claim 1, wherein said nano-porous metal oxide further contains a triazole or diazole compound.
- 4. (Original) A process for in-situ spectral sensitization of nano-porous metal oxide semiconductor with a band-gap of greater than 2.9 eV on its internal and external surface with metal chalcogenide nano-particles with a band-gap of less than 2.9 eV, containing at least one metal chalcogenide, comprising a metal chalcogenide-forming cycle comprising the steps of: contacting nano-porous metal oxide with a solution of metal ions; contacting nano-porous metal oxide with a solution of chalcogenide ions; and subsequent to metal chalcogenide formation rinsing said nano-porous metal oxide with an aqueous solution containing a phosphoric acid or a phosphate.
- 5. (Original) Process according to claim 4, wherein said contact with a solution of metal ions occurs before said contact with a solution of chalcogenide ions.
- 6. (Original) Process according to claim 4, wherein said metal chalcogenide-forming cycle is repeated.
- 7. (Original) Process according to claim 4, wherein said solution of metal ions contains a triazole or diazole compound.
- 8. (Original) Process according to claim 4, wherein said solution of metal ions and said solution of chalcogenide ions contains a triazole or diazole compound.
- 9. (Original) Process according to claim 4, wherein said solution of chalcogenide ions contains a triazole or diazole compound.

- 10. (Original) Process according to claim 4, wherein said nano-porous metal oxide is selected from the group consisting of titanium oxides, tin oxides, niobium oxides, tantalum oxides and zinc oxides.
- 11. (Original) Process according to claim 4, wherein said nano-porous metal oxide further contains a triazole or diazole compound.
- 12. (Original) A photovoltaic device containing a nano-porous metal oxide semiconductor with a band-gap of greater than 2.9 eV in-situ spectrally sensitized on its internal and external surface with metal chalcogenide nano-particles with a band-gap of less than 2.9 eV containing at least one metal chalcogenide, wherein said nano-porous metal oxide further contains a phosphoric acid or a phosphate.
- 13. (Original) Photovoltaic device according to claim 12, wherein said nano-porous metal oxide is selected from the group consisting of titanium oxides, tin oxides, niobium oxides, tantalum oxides and zinc oxides.
- 14. (Original) Photovoltaic device according to claim 12, wherein said nano-porous metal oxide further contains a triazole or diazole compound.
- 15. (Original) A second photovoltaic device containing a nano-porous metal oxide semiconductor with a band-gap of greater than 2.9 eV in-situ spectrally sensitized on its internal and external surface with metal chalcogenide nano-particles with a band-gap of less than 2.9 eV containing at least one metal chalcogenide prepared according to a process for insitu spectral sensitization of nano-porous metal oxide semiconductor comprising a metal chalcogenide-forming cycle comprising the steps of: contacting nano-porous metal oxide with a solution of metal ions; contacting nano-porous metal oxide with a solution of chalcogenide ions; and subsequent to metal chalcogenide formation rinsing said nano-porous metal oxide with an aqueous solution containing a phosphoric acid or a phosphate.
- 16. (Original) Second photovoltaic device according to claim 15, wherein said contact with a solution of metal ions occurs before said contact with a solution of chalcogenide ions.
- 17. (Original) Second photovoltaic device according to claim 15, wherein said metal chalcogenide-forming cycle is repeated.
- 18. (Original) Second photovoltaic device according to claim 15, wherein said solution of metal ions contains a triazole or diazole compound.

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- 19. (Original) Second photovoltaic device according to claim 15, wherein said solution of metal ions and said solution of chalcogenide ions contains a triazole or diazole compound.
- 20. (Original) Second photovoltaic device according to claim 15, wherein said solution of chalcogenide ions contains a triazole or diazole compound.
- 21. (Original) Second photovoltaic device according to claim 15, wherein said nanoporous metal oxide is selected from the group consisting of titanium oxides, tin oxides, niobium oxides, tantalum oxides and zinc oxides.
- 22. (Original) Photovoltaic device according to claim 15, wherein said nano-porous metal oxide further contains a triazole or diazole compound.